



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/532,001	08/10/2005	Seiji Tomita	28955.4024	3822
27890	7590	01/27/2009		
STEP TOE & JOHNSON LLP 1330 CONNECTICUT AVENUE, N.W. WASHINGTON, DC 20036			EXAMINER WILSON, MICHAEL H	
			ART UNIT	PAPER NUMBER
			1794	
			MAIL DATE	DELIVERY MODE
			01/27/2009	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/532,001

Applicant(s)

TOMITA ET AL.

Examiner

MICHAEL WILSON

Art Unit

1794

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 14 October 2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-15 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-15 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SF/ICE)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Response to Amendment

1. This Office action is in response to Applicant's amendment filed 14 October, 2008, which amends claims 1-4 and adds claim 15.

Claims 1-15 are pending.

2. The Oath filed 14 October, 2008 is accepted

3. The objection to the specification is withdrawn.

4. The rejection of under 35 U.S.C. 112, second paragraph of claims 2-4, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention is overcome due to applicant's amending of the claims in the reply filed 14 October, 2008.

5. The rejection under 35 U.S.C. 102(b) of claims 1-6 as being anticipated by Taniguchi et al. (JP-2000219677-A), is overcome due to Applicant's amending of the claims in the reply filed 14 October, 2008.

Claim Objections

6. Claims 2-4 are objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim.

Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form.

Claims 2-4 fail to further limit claim 1 because they recite that L is a group directly bonded to N or C, while claim 1 recites L as a group directly bonded to N.

Appropriate correction is required.

Claim Rejections - 35 USC § 112

7. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

8. Claims 1-15 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

With respect to the proviso, while the specification has support for A being selected from several specific groups such as a four or six carbon alkylene chain, and B being a phenyl or pyridyl group, there is no support for the general recitation of A and B found in lines 25-29 of claim 1 and lines 29-30 of claim 15.

Claim Rejections - 35 USC § 103

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the

invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

10. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148

USPQ 459 (1966), that are applied for establishing a background for determining

obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

11. Claims 1-6 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Taniguchi et al. (JP-2000219677-A).

Regarding claims 1-4, Taniguchi et al. disclose the material for organic electroluminescent devices comprising a compound represented by instant formula (1) (abstract). The reference discloses wherein X is L-Y when L is an arylene group and Y is a group represented by a substituted or unsubstituted heterocyclic group. The reference also discloses wherein the compound of instant formula (1) is a compound of instant formula (6) ([0013], formula 3) and instant formulae (8) to (10) ([0021]-[0029]; EA-05, EA-06, EA-09, EA-10, EA-15, EA-16, EA-19, EA-20, EB-05, EB-06, EB-09, EB-10, EB-15, EB-16, EB-19, and EB-20), and wherein the compound of instant formula (9) is a compound of instant formula (12) ([0021]-[0029]; EA-05, EA-06, EA-15, EA-16, EB-05, EB-06, EB-15, and EB-16). In each of the above compounds the substituent groups of L are arranged in a para-substituted fashion instead of being meta-substituted.

However meta-substituted compounds are positional isomers of the para-substituted compounds. Compounds which are position isomers (compounds having

the same radicals in physically different positions on the same nucleus) are generally of sufficiently close structural similarity that there is a presumed expectation that such compounds possess similar properties. *In re Wilder*, 563 F.2d 457, 195 USPQ 426 (CCPA 1977). See also *In re May*, 574 F.2d 1082, 197 USPQ 601 (CCPA 1978) (stereoisomers prima facie obvious). Therefore it would be obvious to one of ordinary skill in the art at the time of the invention to change the groups bound to "L" from being para-substituted to being meta-substituted.

Regarding claims 5 and 6, modified Taniguchi et al. disclose all the claim limitations as set forth above. Additionally, while the reference does not appear to disclose the specific triplet and singlet energies for the compounds, the compounds conform to general formula 1. As the instant specification teaches that compounds of general formula one meet the singlet and triplet energies required by the claims (instant spec. page 26, lines 1-6), the claim limitation is inherently met by the compounds of Taniguchi et al.

Regarding claim 15, Taniguchi et al. disclose the material for organic electroluminescent devices comprising a compound represented by instant formula (1) (abstract). The reference discloses wherein X is L-Y when L is an arylene group and Y is a group represented by the first structure in line 27 ([0021] E-05, [0023] EA15), the third structure in line 27 ([0023] EA-14), or the second structure of line 28 in the claim ([0022] EA-10, [0024] EA-20). In each of the above compounds the substituent groups of L are arranged in a para-substituted fashion instead of being meta-substituted.

However meta-substituted compounds are positional isomers of the para-substituted compounds. Compounds which are position isomers (compounds having the same radicals in physically different positions on the same nucleus) are generally of sufficiently close structural similarity that there is a presumed expectation that such compounds possess similar properties. *In re Wilder*, 563 F.2d 457, 195 USPQ 426 (CCPA 1977). See also *In re May*, 574 F.2d 1082, 197 USPQ 601 (CCPA 1978) (stereoisomers prima facie obvious). Therefore it would be obvious to one of ordinary skill in the art at the time of the invention to change the groups bound to "L" from being para-substituted to being meta-substituted.

12. Claims 7-11, 13, and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Taniguchi et al. (JP-2000219677-A) as applied to claim 1 above, and further in view of Hosokawa (US 2002/0045061 A1).

Regarding claims 7 and 8, modified Taniguchi et al. disclose all the claim limitations as set forth above. Additionally the reference discloses that the compound is suitable for use in an electroluminescent device [0002] and forms films [0003]. The reference does not explicitly disclose the structure of an electroluminescent device.

Hosokawa teaches an electroluminescent device with a cathode, an anode and one or more organic thin film layers having at least a light emitting layer which are sandwiched between the cathode and the anode [0021]-[0024].

It would be obvious to a person of ordinary skill in the art at the time of the invention to combine the device of Hosokawa with the compound of Taguchi et al as

Taniguchi et al. disclose a compound for use in an electroluminescent device and Hosokawa teach the structure of an electroluminescent device. One of ordinary skill in the art would recognize that the compounds of Taguchi would be suitable for use in the light emission layer of Hosokawa et al. because Taguchi et al. teach it forms "excellent" films and is conductive. Such a substitution would amount to nothing more than use of a known compound for its intended purpose in a known environment to produce entirely expected results.

Regarding claims 9 and 10, Taniguchi et al. disclose all the claim limitations as set forth above. Additionally the reference discloses that the compound is suitable for use in an electroluminescent device [0002] and forms films [0003]. The reference also discloses that the compounds of Taguchi et al. are capable of transporting holes and electrons [0009]. The reference does not explicitly disclose the structure of an electroluminescent device.

Hosokawa teach an electroluminescent device with a cathode, an anode and one or more organic thin film layers having at least a light emitting layer which are sandwiched between the cathode and the anode [0021]-[0024]. In a single layer electroluminescent device, where there is one organic layer between the electrodes, the layer inherently becomes the electron transport, hole transport and light emitting layers taking on the functions of transporting both holes and electrons and recombining the holes and electrons in a recombination zone within the layer.

It would be obvious to a person of ordinary skill in the art at the time of the invention to combine the device of Hosokawa with the compound of Taniguchi et al as

Taniguchi et al. disclose a compound for use in an electroluminescent device and Hosokawa teaches the structure of an electroluminescent device. One of ordinary skill in the art would recognize that the compounds of Taguchi would be suitable for use in the hole and electron transporting layer of Hosokawa et al. because Taguchi et al. teach it forms "excellent" films and is conductive. Such a substitution would amount to nothing more than use of a known compound for its intended purpose in a known environment to produce entirely expected results.

Regarding claim 11, modified Taniguchi et al. disclose all the claim limitations as set forth above. The reference also teaches compounds which form "excellent" films [0003]. The reference does not explicitly disclose the structure of an electroluminescent device.

It would be obvious to a person of ordinary skill in the art at the time of the invention to use the compounds of Taniguchi et al. as a host material in the organic layer of an electroluminescent device. One of ordinary skill in the art would reasonably expect the compounds of Taniguchi et al. to be suitable host compounds given the teaching that the compounds form films. It would amount to nothing more than use of a known compound for its intended purpose in a known environment to produce entirely expected results.

Regarding claims 13 and 14, modified Taniguchi et al. disclose all the claim limitations as set forth above. The reference does not explicitly disclose the structure of an electroluminescent device.

Hosokawa teaches transition metal complexes [0042] in the light emitting layer to facilitate triplet emission [0020].

It would be obvious to a person of ordinary skill in the art at the time of the invention to combine the metal complex and use of triplet emission in the device of Hosokawa et al. with the device of modified Taniguchi et al. in order to increase the luminescent efficiency of the device. Such a combination would amount to nothing more than use of a known compound for its intended purpose in a known environment to produce entirely expected results.

13. Claim 12 is rejected under 35 U.S.C. 103(a) unpatentable over Taniguchi et al. (JP-2000219677-A) and further in view of Hosokawa (US 2002/0045061 A1) as applied to claim 7 above and further in view of Kobayashi (US 2002/0057052 A1).

Regarding claim 12, modified Taniguchi et al. disclose all the claim limitations as set forth above. The reference does not explicitly disclose the structure of an electroluminescent device.

Kobayashi teaches placing an inorganic layer beside the cathode of an electroluminescent device as an electron injection or hole blocking layer [0036].

It would be obvious to a person of ordinary skill in the art at the time of the invention to add the electron injection or hole blocking layer of Kobayashi to the device of modified Taniguchi et al. One of ordinary skill would readily recognize that the electron injection and hole blocking layers of Kobayashi would be useable in the device of modified Taniguchi et al. as both modified Taniguchi et al. and Kobayashi teach

electroluminescent devices. One of ordinary skill in the art would be motivated by the desire to increase electron injection efficiency and block hole from moving further than the emitting layer. Therefore such a combination would amount to nothing more than use of a known compound for its intended purpose in a known environment to produce entirely expected results.

Response to Arguments

14. Applicant's arguments filed 14 October, 2008 have been fully considered but they are not persuasive.

Applicant argues that there is no disclosure or teaching in any of Taniguchi et al. in view of Hosokawa, or otherwise in this record, that would have suggested the desirability of combining any portions thereof effectively to anticipate or suggest applicants' presently claimed invention.

However Taniguchi et al. disclose the material for use in electroluminescent devices [0011]. In an example the reference discloses the compounds used as a host material for a charge generating material in a photoconducting device [0042], also called a photovoltaic device. Photoconducting devices are in a related field of endeavor, electroluminescent devices combine holes and electrons to generate light while photovoltaic devices use light to generate holes and electrons. The host material of a photovoltaic device must be able to support the transport of holes and electrons, which are also requirements of a host material for an electroluminescent device. Therefore the reference teaches the compounds of Taniguchi et al. as host material for

electroluminescent devices. Case law holds that the selection of a known material based on its suitability for its intended use supports prima facie obviousness. *Sinclair & Carroll Co. vs. Interchemical Corp.*, 325 US 327, 65 USPQ 297 (1045).

Applicant further argues that there is no disclosure or teaching in any of Taniguchi et al., Hosokawa, Kobayashi, or otherwise in this record, that would have suggested the desirability of combining any portions thereof effectively to anticipate or suggest applicants presently claimed invention. However Kobayashi teaches placing an inorganic layer beside the cathode of an electroluminescent device as an electron injection or hole blocking layer [0036]. While the motivation to use the teaching of Kobayashi does not come explicitly from the reference, electron injection layers are commonly used in the art and understood to improve the injection of electrons into a light-emitting layer, and hole blocking layers are commonly used in the art to confine holes to the light-emitting layer. These layers are commonly used by one of ordinary skill in the art to improve the luminescence of the device. Therefore, one of ordinary skill in the art would be motivated to place an inorganic layer between the an electrode and the organic layers by the desire to increase electron injection efficiency or to block holes from moving further than the emitting layer, as stated in the rejection of record.

While it is agreed that Hosokawa and Kobayashi each do not disclose applicants claimed material, they are only used as teaching references, and therefore, it is not necessary for these secondary references to contain all the features of the presently claimed invention, *In re Nievelt*, 482 F.2d 965, 179 USPQ 224, 226 (CCPA 1973), *In re Keller* 624 F.2d 413, 208 USPQ 871, 881 (CCPA 1981). Rather these references

teaches a certain concept, namely Hosokawa teaches the structure of an electroluminescent device with a phosphorescent light-emitting compound and Kobayashi teaches placing an inorganic layer beside the cathode of an electroluminescent device as an electron injection or hole blocking layer, and in combination with the primary reference, disclose the presently claimed invention.

Conclusion

15. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

16. Any inquiry concerning this communication or earlier communications from the examiner should be directed to MICHAEL WILSON whose telephone number is (571)

270-3882. The examiner can normally be reached on Monday-Thursday, 7:30-5:00PM EST, alternate Fridays off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Callie Shosho can be reached on (571) 272-1123. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

17. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

MHW

/Callie E. Shosho/
Supervisory Patent Examiner, Art Unit 1794